APPENDIX B

NPDES PERMIT

APPENDIX B

State of Washington
DEPARTMENT OF ECOLOGY
(hereinafter referred to as the Department)
Northwest Regional Office
3190 - 160th Avenue SE
Bellevue, WA 98008-5452

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

UNOCAL CORPORATION
P. O. Box 2004
Edmonds, WA 98020

Facility Location: Unocal Edmonds Terminal 11720 Unoco Road, Building C Edmonds, WA 98020 Snohomish County Cedar/Green WQMA	Receiving Water: Willow Creek Tributary to Puget Sound Discharge Location: Outfall 001 — Outfall 002 Latitude: 47° 48' 26" N — 47° 48' 25" N Longitude: 122° 23' 24" W — 122° 23' 24" W
Water Body I.D. No.: WA-PS-0040	Industry Type: Bulk Petroleum Terminal (closed)

is authorized to discharge in accordance with the special and general conditions which follow.

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GENERAL CONDITIONS

SUMMARY OF ORDER REPORT SUBMITTALS

Refer to the Special and General Conditions of this Order for additional submittal requirements.

Order Section	Submittal	Frequency	First Submittal Date
S3.A	Discharge Monitoring Report	Quarterly and when unanticipated discharges occur	July 15, 2001
S4.	Operation and Maintenance	1/Order cycle	January 1, 2002
S5.	Acute Toxicity	2/first year or thereafter as necessary	
S5.E.	Monitoring Where There is No Limit for Acute Toxicity	2/every fifth year	
S6.A.	Effluent Mixing Study Plan	If necessary	Thirty (30) days prior to initiation of the effluent mixing study
S6.B.	Effluent Mixing Study	If necessary	January 15, 2002
S7.	Proposed Modification to the Stormwater Pollution Prevention Plan	As necessary	December 1, 2004
S7.	Updated Stormwater Pollution Prevention Plan	Once	Within thirty (30) days prior to proposed modification
S10.	Study of Background Concentration for Lead and Arsenic	As necessary	Six (6) months after becoming aware of lead discharge concentration greater than 5 μg/L

SPECIAL CONDITIONS

S1. EFFLUENT LIMITATIONS

Beginning on the issuance date of this Order, Unocal is authorized to discharge treated storm water, ground water, and other unanticipated discharges to Willow Creek (a tributary to Puget Sound) at the discharge locations, Outfalls 001 and 002, subject to the following limitations:

EFFLUENT LIMITATIONS[a]

Parameter	Maximum Daily[b]
pH (s.u.)	Between 6.5 and 8.5 standard units
Benzene	5 µg/L
Naphthalenes	160 µg/L
Gasoline Range Organics (GRO), benzene present	800 µg/L
Gasoline Range Organics (GRO), no detectable benzene	1,000 µg/L
Diesel Range Organics (DRO)	500 µg/L
Heavy Oils[c]	500 µg/L
BTEX	100 µg/L
Oily Sheen	No visible sheen

[a] The point of compliance is at the Outfall 001 and Outfall 002, or at any point where a unanticipated discharge leaves a holding tank or treatment system prior to discharge to the storm water collection system, or surface water.

Outfall 001 is defined as the sump outlet downstream of the API separator.

Outfall 002 is defined as the outlet of Detention Basin #2 (also known as Midlake).

[b] The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For other units of measurement, the daily discharge is the average measurement of the pollutant over the day.

[c] Heavy oils means organic compounds measured using NWTPH-Dx. Examples are #6 fuel oil, bunker C oil, hydraulic oil, and waste oil. For further information, please see WAC173-340-900, table 720-1, footnote x.

S2. TESTING SCHEDULE

Unocal shall monitor the wastewater at Outfalls 001 and 002, as defined in S1, according to the following schedule:

Tests	Sample Point[1,2]	Sampling Frequency[2]	Sample Type
Flow	Final Effluent	Monthly	Estimated
pH	Final Effluent	Monthly	Grab
Benzene[3]	Final Effluent	Monthly	Grab
Ethylbenzene[3]	Final Effluent	Monthly	Grab
Naphthalenes[3]	Final Effluent	Monthly	Grab
Toluene[3]	Final Effluent	Monthly	Grab
Xylenes[3]	Final Effluent	Monthly	Grab
GRO[3]	Final Effluent	Monthly	Grab
DRO[3]	Final Effluent	Monthly	Grab
Heavy Oils[3]	Final Effluent	Monthly	Grab
Lead[4]	Final Effluent	Monthly	Grab
Arsenic[4]	Final Effluent	Monthly	Grab
Oily Sheen	Final Effluent	Weekly	Visual Inspection

[1] The final effluent sample point is defined as the nearest accessible point after the last holding containment and prior to entering Willow Creek.

[2] All unanticipated discharges shall be sampled to ensure compliance with the limitations that appear in S1 prior to discharge.

[3] These compounds shall be measured using analytical procedures specified in WAC 173-340-830. Refer also to WAC 173-340-900, Table 830-1 and footnotes.

[4] Total Recoverable Lead and Total Recoverable Arsenic shall be measured using EPA Method 239.2 or an equivalent EPA approved method which achieves a detection level below 5 ppb. If the monitoring data indicates concentrations exceeding 15 μg/L for lead or 5 μg/L for arsenic, the Department will require Unocal to investigate the vicinity's background concentration for lead and/or arsenic in ground water and rain water within six (6) months of becoming aware of such concentrations. If the monitoring data indicates exceedance of the background concentration for lead and/or arsenic, then the Department may use the available background information to set a water quality-based lead limit for the facility.

S3. MONITORING AND REPORTING

A. Reporting

Monitoring shall be started on the issuance date of the Order or whenever the first discharge occurs.

This facility is the subject of cleanup actions pursuant to the Model Toxics Control Act. Monitoring shall be done for any water produced during cleanup actions. Discharge of such water shall be considered an unanticipated discharge. This water shall be tested and treated to meet all discharge limits prior to discharge. A monitoring report shall be prepared as appropriate for each unanticipated discharge.

Monitoring results obtained during the previous three (3) months shall be summarized and reported on the Monthly Discharge Monitoring Report (DMR) Form (EPA 3320-1) and submitted no later than the 30th day of the month following the completed reporting period. **One discharge monitoring report shall be prepared for each month. Reports are due January 15, April 15, July 15, and October 15 of each year. The first report is due July 15, 2001. Discharge monitoring reports shall be prepared for each unanticipated discharge as directed by the Department.**

All data shall be kept in an electronic relational database suitable for import into Microsoft Access. The structure of the database shall be approved by Ecology. An updated copy of the database shall be furnished with each discharge monitoring report.

Reports shall be sent to the Department of Ecology, Northwest Regional Office, 3190 – 160th Avenue SE, Bellevue, Washington 98008-5452. One hard copy shall be sent to the attention of Ms. Jeanne Tran, Water Quality Program. Copies of the updated database shall also be sent to the attention of Mr. David South, Toxics Cleanup Program (DSOU461@ecy.wa.gov). Ecology will advise the applicant of any changes in personnel to whom these reports should be directed.

B. Records Retention

This facility is the subject of cleanup actions pursuant to the Model Toxics Control Act. In conformance with the provisions of Agreed Order No. DE 92TC N328, Unocal shall preserve in a readily retrievable fashion, during the pendency of this Order and for ten (10) years from the date of completion of the work performed pursuant to this Order, all records of monitoring information. Should any portion of the work performed by undertaken through contractors or agents of Unocal, then Unocal agrees to include in their contract with such contractors or agents a record retention requirement meeting the terms of this paragraph.

Unocal shall retain all records of all monitoring information for a minimum of three (3) years. Such information shall include all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copy of all reports required by this Order, and record of all data used to complete the application for this Order. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by Unocal or when requested by the Director.

C. Recording of Results

For each measurement or sample taken, Unocal shall record the following information: (1) the date, exact place and time of sampling; (2) the company and individual who performed the sampling or measurement; (3) the dates the analyses were performed; (4) who performed the analyses; (5) the analytical techniques or methods used; and (6) the results of all analyses.

D. Representative Sampling

Samples and measurements taken to meet the requirements of this condition shall be representative of the volume and nature of the monitored discharge, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions affecting effluent quality.

E. Test Procedures

All sampling and analytical methods used to meet the monitoring requirements specified in this Order shall, unless approved otherwise by this Order or in writing by the Department, conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants, contained in 40 CFR Part 136.

F. Laboratory Accreditation

All monitoring data required by the Department shall be prepared by a laboratory registered or accredited under the provisions of, *Accreditation of Environmental Laboratories*, Chapter 173-50 WAC. Flow, temperature, settleable solids, conductivity, pH, and internal process control parameters are exempt from this requirement. Conductivity and pH shall be accredited if the laboratory must otherwise be registered or accredited. The Department exempts crops, soils, and hazardous waste data from this requirement pending accreditation of laboratories for analysis of these media.

G. Additional Monitoring by Unocal

If Unocal monitors any pollutant more frequently than required by this Order using test procedures specified by Condition S2. of this Order, then the results of this monitoring shall be included in the calculation and reporting of the data submitted in Unocal's DMR.

H. Noncompliance Notification

In the event Unocal is unable to comply with any of the terms and conditions of this Order due to any cause, Unocal shall:

1. Immediately take action to stop, contain, and clean up unauthorized discharges or otherwise stop the noncompliance, correct the problem, and, if applicable, repeat sampling and analysis of any noncompliance immediately and submit the results to the Department within thirty (30) days after becoming aware of the violation.

2. Immediately notify the Department of the failure to comply.

3. Submit a detailed, written report to the Department within thirty (30) days (five [5] days for upsets and bypasses), unless requested earlier by the Department. The report shall contain a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

Compliance with these requirements does not relieve Unocal from responsibility to maintain continuous compliance with the terms and conditions of this Order or the resulting liability for failure to comply.

S4. OPERATION AND MAINTENANCE

Unocal shall, at all times, properly operate and maintain all facilities or systems of treatment and control (and related appurtenances) which are installed to achieve compliance with the terms and conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems, which are installed by Unocal only when the operation is necessary to achieve compliance with the conditions of this Order.

A. Operations and Maintenance Manual

An Operations and Maintenance (O&M) Manual shall be prepared by Unocal in accordance with WAC 173-240-150 and be submitted to the Department for approval by January 1, 2002. The O&M Manual shall be reviewed by Unocal at least annually and Unocal shall confirm this review by letter to the Department. Substantial changes or updates to the O&M Manual shall be submitted to the Department whenever they are incorporated into the manual.

The approved Operations and Maintenance Manual shall be kept available on-site and all operators shall follow the instructions and procedures of this manual.

The O&M Manual shall include:

1. Emergency procedures for plant shutdown and cleanup in event of wastewater system upset or failure.

2. Plant maintenance procedures.

The following information shall be summarized in the initial chapter of the O&M Manual. This chapter shall be entitled the "Treatment System Operating Plan." For the purposes of this Order, a Treatment System Operating Plan (TSOP) is a concise summary of specifically defined elements of the O&M Manual. The TSOP shall not conflict with the O&M Manual and shall include the following information:

1. A baseline operating condition, which describes the operating parameters and procedures, used to meet the effluent limitations of S1 at the production levels used in developing these limitations.

2. In the event of an upset, due to plant maintenance activities, severe stormwater events, startups or shutdowns or other causes, the plan shall describe the operating procedures and conditions employed to mitigate the upset. The monitoring and reporting shall be described in the plan.

3. A description of any regularly scheduled maintenance or repair activities at the facility which would affect the volume or character of the wastes discharged to the wastewater treatment system and a plan for monitoring and treating/controlling the discharge of maintenance-related materials (such as cleaners, degreasers, solvents, etc.) that will be discharged, and a plan for monitoring/controlling the discharge of maintenance-related materials.

B. Bypass Procedures

Bypass, which is the intentional diversion of waste streams from any portion of a treatment facility, is prohibited, and the Department may take enforcement action against Unocal for bypass unless one of the following circumstances (1, 2, or 3) is applicable.

1. Bypass for Essential Maintenance without the Potential to Cause Violation of Order Limits or Conditions.

   Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this Order, or adversely impact public health as determined by the Department prior to the bypass. Unocal shall submit prior notice, if possible, at least ten (10) days before the date of the bypass.

2. Bypass Which is Unavoidable, Unanticipated, and Results in Noncompliance of this Order

   This bypass is ordered only if:

   a. Bypass is unavoidable to prevent loss of life, personal injury, or severe property damage. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass.

b. There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment facility.

c. The Department is properly notified of the bypass as required in condition S3E of this Order.

3. Bypass which is Anticipated and has the Potential to Result in Noncompliance of this Order

Unocal shall notify the Department at least thirty (30) days before the planned date of bypass. The notice shall contain: (1) a description of the bypass and its cause; (2) an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing; (3) a cost-effectiveness analysis of alternatives including comparative resource damage assessment; (4) the minimum and maximum duration of bypass under each alternative; (5) a recommendation as to the preferred alternative for conducting the bypass; (6) the projected date of bypass initiation; (7) a statement of compliance with SEPA; (8) a request for modification of water quality standards as provided for in WAC 173-201A-110, if an exceedance of any water quality standard is anticipated; and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the bypass.

For probable construction bypasses, the need to bypass is to be identified as early in the planning process as possible. The analysis required above shall be considered during preparation of the engineering report or facilities plan and plans and specifications and shall be included to the extent practical. In cases where the probable need to bypass is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the bypass.

The Department will consider the following prior to issuing an administrative order for this type bypass:

a. If the bypass is necessary to perform construction or maintenance-related activities essential to meet the requirements of this Order.

b. If there are feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment facility.

c. If the bypass is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed bypass and any other relevant factors, the Department will approve or deny the request. The public shall be notified and given an opportunity to comment on bypass incidents of significant duration, to the extent feasible. Approval of a request to bypass will be by administrative order issued by the Department under RCW 90.48.120.

C. Duty to Mitigate

Unocal is required to take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment.

S5. ACUTE TOXICITY

A. Effluent Characterization

Unocal shall conduct acute toxicity testing on the final effluent (Outfall 001 and Outfall 002) to determine the presence and amount of acute (lethal) toxicity. The two acute toxicity tests listed below shall be conducted on each sample taken for effluent characterization.

Effluent characterization for acute toxicity shall be conducted semiannually for one year. Acute toxicity testing shall follow protocols, monitoring requirements, and quality assurance/quality control procedures specified in this Section.

A dilution series consisting of a minimum of five concentrations (2%, 6.25%, 12.5%, 50%, and 100% effluent) and a control shall be used to estimate the concentration lethal to 50% of the organisms (LC_{50}). The percent survival in 100% effluent shall also be reported.

Testing shall begin no later than October 15, 2001. A written report shall be submitted to the Department within sixty (60) days after the sample date. The summary report shall include a tabulated summary of the individual test results and any information on sources of toxicity, toxicity source control, correlation with effluent data, and toxicity treatability which is developed during the period of testing.

Acute toxicity tests shall be conducted with the following species and protocols:

1) Fathead minnow, *Pimephales promelas* (96-hour static-renewal test, method: EPA/600/4-90/027F)

2) Daphnid, *Ceriodaphnia dubia*, *Daphnia pulex*, or *Daphnia magna* (48-hour static test, method: EPA/600/4-90/027F)

B. Effluent Limit for Acute Toxicity

Unocal has an effluent limit for acute toxicity if, after completing one year of effluent characterization, either:

1) The median survival of any species in 100% effluent is below 80%, or

2) Any one test of any species exhibits less than 65% survival in 100% effluent.

If an effluent limit for acute toxicity is required by subsection B at the end of one year of effluent characterization, Unocal shall immediately complete all applicable requirements in subsections C, D, and F.

If no effluent limit is required by subsection B at the end of one year of effluent characterization, then Unocal shall complete all applicable requirements in subsections E and F.

The effluent limit for acute toxicity is no acute toxicity detected in a test concentration representing the acute critical effluent concentration (ACEC).

In the event of failure to pass the test described in subsection C. of this section for compliance with the effluent limit for acute toxicity, Unocal is considered to be in compliance with all Order requirements for acute whole effluent toxicity as long as the requirements in subsection D. are being met to the satisfaction of the Department.

The ACEC means the maximum concentration of effluent during critical conditions at the boundary of the zone of acute criteria exceedance assigned pursuant to WAC 173-201A-100. The ACEC will be determined as a component of S6. Effluent Mixing of this Order.

If Unocal has an effluent limit for acute toxicity and the ACEC is not known, then effluent characterization for acute toxicity shall continue until the time an ACEC is known. Effluent characterization shall be continued until an ACEC has been determined and shall be performed using each one of the tests listed in subsection A on a rotating basis. When an ACEC has been determined, Unocal shall immediately complete all applicable requirements in subsections C, D, and F.

If no effluent limit is required by subsection B at the end of one year of effluent characterization, then Unocal shall stop effluent characterization and begin to conduct the activities in subsection E even if the ACEC is unknown.

C. Monitoring for Compliance With an Effluent Limit for Acute Toxicity

Monitoring to determine compliance with the effluent limit shall be conducted biannually for the remainder of the Order term using each of the species listed in subsection A above on a rotating basis and performed using at a minimum 100% effluent, the ACEC, and a control. Unocal shall schedule the toxicity tests in the order listed in the Order unless the Department notifies Unocal in writing of another species rotation schedule. The percent survival in 100% effluent shall be reported for all compliance monitoring.

Compliance with the effluent limit for acute toxicity means no statistically significant difference in survival between the control and the test concentration representing the ACEC. Unocal shall immediately implement subsection D. if any acute toxicity test conducted for compliance monitoring determines a statistically significant difference in survival between the control and the ACEC using hypothesis testing at the 0.05 level of significance (Appendix H, EPA/600/4-89/001). If the difference in survival between the control and the ACEC is less than 10%, the hypothesis test shall be conducted at the 0.01 level of significance.

D. Response to Noncompliance With an Effluent Limit for Acute Toxicity

If a toxicity test conducted for compliance monitoring under subsection C determines a statistically significant difference in response between the ACEC and the control, Unocal shall begin additional compliance monitoring within one week from the time of receiving the test results. This additional monitoring shall be conducted weekly for four (4) consecutive weeks using the same test and species as the failed compliance test. Testing shall be conducted using a series of at least five effluent concentrations and a control in order to be able to determine appropriate point estimates. One of these effluent concentrations shall equal the ACEC and be compared statistically to the nontoxic control in order to determine compliance with the effluent limit for acute toxicity as described in subsection B. The discharger shall return to the original monitoring frequency in subsection C after completion of the additional compliance monitoring.

If Unocal believes that a test indicating noncompliance will be identified by the Department as an anomalous test result, Unocal may notify the Department that the compliance test result might be anomalous and that Unocal intends to take only one additional sample for toxicity testing and wait for notification from the Department before completing the additional monitoring required in this subsection. The notification to the Department shall accompany the report of the compliance test result and identify the reason for considering the compliance test

result to be anomalous. Unocal shall complete all of the additional monitoring required in this subsection as soon as possible after notification by the Department that the compliance test result was not anomalous. If the one additional sample fails to comply with the effluent limit for acute toxicity, then Unocal shall proceed without delay to complete all of the additional monitoring required in this subsection. The one additional test result shall replace the compliance test result upon determination by the Department that the compliance test result was anomalous.

If all of the additional compliance monitoring conducted in accordance with this subsection complies with the Order limit, Unocal shall search all pertinent and recent facility records (operating records, monitoring results, inspection records, spill reports, weather records, production records, raw material purchases, pretreatment records, etc.) and submit a report to the Department on possible causes and preventive measures for the transient toxicity event which triggered the additional compliance monitoring.

If toxicity occurs in violation of the acute toxicity limit during the additional compliance monitoring, Unocal shall submit a Toxicity Identification/Reduction Evaluation (TI/RE) plan to the Department within sixty (60) days after test results are final. The TI/RE plan shall be based on WAC 173-205-100(2) and shall be implemented in accordance with WAC 173-205-100(3).

E. Monitoring When There Is No Limit for Acute Toxicity

Unocal shall test final effluent once in the last summer and once in the last winter every five (5) years. All species used in the initial acute effluent characterization or substitutes approved by the Department shall be used and results submitted to the Department.

F. Sampling and Reporting Requirements

1. All reports for effluent characterization or compliance monitoring shall be submitted in accordance with the most recent version of Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* in regards to format and content. Reports shall contain bench sheets and reference toxicant results for test methods. If the laboratory provides the toxicity test data on floppy disk or by other means of transmittal for electronic entry into the Department's database, then Unocal shall send the electronic file to the Department along with the test report, bench sheets, and reference toxicant results.

2. Testing shall be conducted on grab samples. Samples taken for toxicity testing shall be cooled to 4 degrees Celsius while being collected and shall be sent to the lab immediately upon completion. The lab shall begin the toxicity testing as soon as possible but no later than thirty six (36) hours after sampling was ended.

3. All samples and test solutions for toxicity testing shall have water quality measurements as specified in Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* or most recent version thereof.

4. All toxicity tests shall meet quality assurance criteria and test conditions in the most recent versions of the EPA manual listed in subsection A. and the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria*. If test results are determined to be invalid or anomalous by the Department, testing shall be repeated with freshly collected effluent.

5. Control water and dilution water shall be laboratory water meeting the requirements of the EPA manual listed in subsection A or pristine natural water of sufficient quality for good control performance.

6. The whole effluent toxicity tests shall be run on an unmodified sample of final effluent.

7. Unocal may choose to conduct a full dilution series test during compliance monitoring in order to determine dose response. In this case, the series must have a minimum of five effluent concentrations and a control. The series of concentrations must include the ACEC.

8. All whole effluent toxicity tests, effluent screening tests, and rapid screening tests that involve hypothesis testing and do not comply with the acute statistical power standard of 29% as defined in WAC 173-205-020 must be repeated on a fresh sample with an increased number of replicates to increase the power.

S6. EFFLUENT MIXING STUDY

A. General Requirements

Should Unocal be unable to consistently comply with the discharge limits listed in this Order after AKART has been fully implemented, Unocal shall determine the degree of effluent and receiving water mixing which occurs within the mixing zone. The degree of mixing shall be determined during critical conditions, as defined in WAC 173-201A-020 Definitions-"Critical Condition," or as close to critical conditions as reasonably possible.

The critical condition scenarios shall be established in accordance with *Guidance for Conducting Mixing Zone Analysis* (Ecology, 1996). The dilution ratio shall be measured in the field with dye using study protocols specified in the *Guidance,* Section 5.0 "Conducting a Dye Study," as well as other protocols listed in subpart C. Protocols. The use of mixing models is an acceptable alternative or adjunct to a dye study if the critical ambient conditions necessary for model input are known or will be established with field studies; and if the diffuser is visually inspected for integrity or has been recently tested for performance by the use of tracers. The *Guidance* mentioned above shall be consulted when choosing the appropriate model. The use of models is also required if critical condition scenarios that need to be examined are quite different from the set of conditions present during the dye study.

Validation (and possibly calibration) of a model may be necessary and shall be done in accordance with the *Guidance* mentioned above - in particular, subsection 5.2 "Quantify Dilution." The resultant dilution ratios for acute and chronic boundaries shall be applied in accordance with directions found in Ecology's *Order Writer's Manual* (1994) - in particular Chapter VI.

A Plan of Study shall be submitted to the Department for review thirty (30) days prior to initiation of the effluent mixing study.

B. Reporting Requirements

If Unocal has information on the background physical conditions or background concentration of chemical substances (for which there are criteria in Chapter 173-201A WAC) in the receiving water, this information shall be submitted to the Department as part of the Effluent Mixing Report.

The results of the effluent mixing study shall be included in the Effluent Mixing Report, which shall be submitted to the Department for approval no later than January 15, 2002.

If the results of the mixing study, toxicity tests, and chemical analysis indicate that the concentration of any pollutant(s) exceeds or has a reasonable potential to exceed the State Water Quality Standards, Chapter 173-201A WAC, the Department may issue a regulatory order to require a reduction of pollutants or modify this Order to impose effluent limitations to meet the Water Quality Standards.

Unocal shall use some method of fixing and reporting the location of the outfall and mixing zone boundaries (i.e., triangulation off the shore, microwave navigation system, or using Loran or Global Positioning System (GPS) coordinates). The method of fixing station location and the actual station locations shall be identified in the report.

C. Protocols

Unocal shall determine the dilution ratio using protocols outlined in the following references, approved modifications thereof, or by another method approved by the Department:

- Akar, P.J. and G.H. Jirka. 1990. Cormix2: An Expert System for Hydrodynamic Mixing Zone Analysis of Conventional and Toxic Multiport Diffuser Discharges. USEPA Environmental Research Laboratory, Athens, GA. Draft, July 1990.

- Baumgartner, D.J., W.E. Frick, P.J.W. Roberts, and C.A. Bodeen, 1993. *Dilution Models for Effluent Discharges.* USEPA. Pacific Ecosystems Branch, Newport, OR.

- Doneker, R.L. and G.H. Jirka. 1990. *Cormix1: An Expert System for Hydrodynamic Mixing Zone Analysis of Conventional and Toxic Submerged Single Port Discharges.* USEPA, Environmental Research Laboratory, Athens, GA. EPA/600-3-90/012.

- Ecology, 1994. *Order Writer's Manual,* Water Quality Program, Department of Ecology, Olympia WA 98504, July, including addenda through October 1996.

- Ecology, 1996. *Guidance for Conducting Mixing Zone Analyses,* Order Writer's Manual, (Appendix 6.1), Water Quality Program, Department of Ecology, Olympia WA 98504, October.

- Kilpatrick, F.A., and E.D. Cobb. 1985. Measurement of Discharge Using Tracers. Chapter A16. *Techniques of Water-Resources Investigations of the USGS, Book 3, Application of Hydraulics.* USGS, U.S. Department of the Interior. Reston, VA.

- Wilson, J.F., E.D. Cobb, and F.A. Kilpatrick. 1986. Fluorometric Procedures for Dye Tracing. Chapter A12. *Techniques of Water-Resources Investigations of the USGS, Book 3, Application of Hydraulics.* USGS, U.S. Department of the Interior. Reston, VA.

S7. UPDATED STORMWATER POLLUTION PREVENTION PLAN

Unocal shall submit to the Department an update to the existing Stormwater Pollution Prevention Plan (SWPPP) once every five (5) years.

Unocal shall modify the existing SWPPP whenever there is a change in design, construction, operation, or maintenance, which causes the SWPPP to be less effective in controlling pollutants. Whenever the description of potential pollutant sources or the pollution prevention measures and controls identified in the SWPPP are inadequate, the SWPPP shall be modified, as appropriate, within two (2) weeks of such determination. The proposed modifications to the SWPPP shall be submitted to the Department at least thirty (30) days in advance of implementing the proposed changes in the plan unless Ecology approves immediate implementation. Unocal shall provide for implementation of any modifications to the SWPPP in a timely manner.

S8. STUDY OF BACKGROUND CONCENTRATION FOR LEAD AND ARSENIC

If monitoring data for lead indicates concentrations exceeding 15 µg/L for lead and/or 5 µg/L for arsenic (ppb total recoverable), Unocal shall conduct a study of the vicinity's background concentration for lead and/or arsenic in groundwater within six (6) months of discovering such background concentrations. Once the study is approved by the Department, the monitoring data for lead and/or arsenic will be used to compare with the background concentration, and subsequently, a lead and/or arsenic limit will be determined for the facility.

S9. MIXING ZONE

After AKART has been fully implemented, should Unocal still not be able to meet the effluent limits set forth in Special Condition S1 and S8, Unocal may apply for establishment of a mixing zone.

GENERAL CONDITIONS

G1. SIGNATORY REQUIREMENTS

All applications, reports, or information submitted to the Department shall be signed and certified.

A. All applications required by this Order shall be signed by either a responsible corporate officer of at least the level of vice president of a corporation, a general partner of a partnership, or the proprietor of a sole proprietorship.

B. All reports required by this Order and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Department.

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

C. Changes to authorization. If an authorization under paragraph B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph B.2 above must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.

D. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G2. RIGHT OF INSPECTION AND ENTRY

Unocal shall allow an authorized representative of the Department, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a discharge is located or where any records must be kept under the terms and conditions of this Order.

B. To have access to and copy - at reasonable times and at reasonable cost - any records required to be kept under the terms and conditions of this Order.

C. To inspect - at reasonable times - any facilities, equipment (including monitoring and control equipment), practices, methods, or operations regulated or required under this Order.

D. To sample or monitor - at reasonable times - any substances or parameters at any location for purposes of assuring Order compliance or as otherwise authorized by the Clean Water Act.

G3. ORDER ACTIONS

This Order may be modified, revoked and reissued, or terminated either at the request of any interested person (including Unocal) or upon the Department's initiative. However, the Order may only be modified, revoked and reissued, or terminated for the reasons specified in 40 CFR 122.62, 122.64 or WAC 173-220-150 according to the procedures of 40 CFR 124.5.

A. The following are causes for terminating this Order during its term, or for denying an Order renewal application:

1. Violation of any Order term or condition.
2. Obtaining an Order by misrepresentation or failure to disclose all relevant facts.
3. A material change in quantity or type of waste disposal.
4. A determination that the permitted activity endangers human health or the environment or contributes to water quality standards violations and can only be regulated to acceptable levels by Order modification or termination [40 CFR part 122.64(3)].
5. A change in any condition that requires either a temporary or permanent reduction or elimination of any discharge or sludge use or disposal practice controlled by the Order [40 CFR part 122.64(4)].
6. Nonpayment of fees assessed pursuant to RCW 90.48.465.
7. Failure or refusal of Unocal to allow entry as required in RCW 90.48.090.

B. The following are causes for modification but not revocation and reissuance except when Unocal requests or agrees:

1. A material change in the condition of the waters of the state.

2. New information not available at the time of Order issuance that would have justified the application of different Order conditions.

3. Material and substantial alterations or additions to the permitted facility or activities which occurred after this Order issuance.

4. Promulgation of new or amended standards or regulations having a direct bearing upon Order conditions, or requiring Order revision.

5. Unocal has requested a modification based on other rationale meeting the criteria of 40 CFR part 122.62.

6. The Department has determined that good cause exists for modification of a compliance schedule, and the modification will not violate statutory deadlines.

7. Incorporation of an approved local pretreatment program into a municipality's Order.

C. The following are causes for modification or alternatively revocation and reissuance:

1. Cause exists for termination for reasons listed in A1 through A7, of this section, and the Department determines that modification or revocation and reissuance is appropriate.

2. The Department has received notification of a proposed transfer of the Order. An Order may also be modified to reflect a transfer after the issuance date of an automatic transfer (General Condition G8) but will not be revoked and reissued after the issuance date of the transfer except upon the request of the new owner.

G4. REPORTING A CAUSE FOR MODIFICATION

Unocal shall submit a new application, or a supplement to the previous application, along with required engineering plans and reports whenever a material change to the facility or in the quantity or type of discharge is anticipated which is not specifically authorized by this Order. This application shall be submitted at least sixty (60) days prior to any proposed changes. The filing of a request by Unocal for an Order modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not relieve Unocal of the duty to comply with the existing Order until it is modified or reissued.

G5. PLAN REVIEW REQUIRED

Prior to constructing or modifying any wastewater control facilities, an engineering report and detailed plans and specifications shall be submitted to the Department for approval in accordance with Chapter 173-240 WAC. Engineering reports, plans, and specifications shall be submitted at least one hundred eighty (180) days prior to the planned start of construction unless a shorter time is approved by Ecology. Facilities shall be constructed and operated in accordance with the approved plans.

G6. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this Order shall be construed as excusing Unocal from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G7. TRANSFER OF THIS ORDER

In the event of any change in control or ownership of facilities from which the authorized discharge emanate, Unocal shall notify the succeeding owner or controller of the existence of this Order by letter, a copy of which shall be forwarded to the Department.

A. Transfers by Modification

Except as provided in paragraph B below, this Order may be transferred by Unocal to a new owner or operator only if this Order has been modified or revoked and reissued under 40 CFR 122.62(b)(2), or a minor modification made under 40 CFR 122.63(d), to identify the new owner and incorporate such other requirements as may be necessary under the Clean Water Act.

B. Automatic Transfers

This Order may be automatically transferred to a new owner if:

1. Unocal notifies the Department at least thirty (30) days in advance of the proposed transfer date.

2. The notice includes a written agreement between the existing and new owners containing a specific date transfer of Order responsibility, coverage, and liability between them.

3. The Department does not notify Unocal and the proposed new owner of its intent to modify or revoke and reissue this Order. A modification under the subparagraph may also be minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the written agreement.

G8. REDUCED PRODUCTION FOR COMPLIANCE

Unocal, in order to maintain compliance with its Order, shall control production and/or all discharges upon reduction, loss, failure, or bypass of the treatment facility until the facility is restored or an alternative method of treatment is provided. This requirement applies in the situation where, among other things, the primary source of power of the treatment facility is reduced, lost, or fails.

G9. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall not be resuspended or reintroduced to the final effluent stream for discharge to state waters.

G10. DUTY TO PROVIDE INFORMATION

Unocal shall submit to the Department, within a reasonable time, all information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Unocal shall also submit to the Department upon request, copies of records required to be kept by this Order [40 CFR 122.41(h)].

G11. OTHER REQUIREMENTS OF 40 CFR

All other requirements of 40 CFR 122.41 and 122.42 are incorporated in this Order by reference.

G12. ADDITIONAL MONITORING

The Department may establish specific monitoring requirements in addition to those contained in this Order by administrative order or Order modification.

G13. PENALTIES FOR VIOLATING ORDER CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this Order shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars ($10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of this Order shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars ($10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G14. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based Order effluent limitations because of factors beyond the reasonable control of Unocal. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based Order effluent limitations if the requirements of the following paragraph are met.

Unocal who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that:
1) an upset occurred and that Unocal can identify the cause(s) of the upset;
2) the Ordered facility was being properly operated at the time of the upset;
3) Unocal submitted notice of the upset as required in condition S3.E; and
4) Unocal complied with any remedial measures required under S5 of this Order.

In any enforcement proceeding Unocal seeking to establish the occurrence of an upset has the burden of proof.

G15. PROPERTY RIGHTS

This Order does not convey any property rights of any sort, or any exclusive privilege.

G16. DUTY TO COMPLY

Unocal shall comply with all conditions of this Order. Any Order noncompliance constitutes a violation of the Clean Water Act and is grounds for enforcement action; for Order termination, revocation and reissuance, or modification.

G17. TOXIC POLLUTANTS

Unocal shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement.

G18. PENALTIES FOR TAMPERING

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this Condition, punishment shall be a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four (4) years, or by both.

G19. REPORTING PLANNED CHANGES

Unocal shall, as soon as possible, give notice to the Department of planned physical alterations or additions to the Ordered facility, production increases, or process modification which will result in: 1) the Ordered facility being determined to be a new source pursuant to 40 CFR 122.29(b); 2) a significant change in the nature or an increase in quantity of pollutants discharged; or 3) a significant change in Unocal's sludge use or disposal practices. Following such notice, this Order may be modified, or revoked and reissued pursuant to 40 CFR 122.62(a) to specify and limit any pollutants not previously limited. Until such modification is effective, any new or increased discharge in excess of limits listed in this Order or not specifically authorized by this Order constitutes a violation.

G20. REPORTING ANTICIPATED NONCOMPLIANCE

Unocal shall give advance notice to the Department by submission of a new application or supplement thereto at least one hundred and eighty (180) days prior to commencement of such discharges, of any facility expansions, production increases, or other planned changes, such as process modifications, in the permitted facility or activity which may result in noncompliance with this Order limits or conditions. Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, shall be scheduled during non-critical water quality periods and carried out in a manner approved by the Department.

G21. REPORTING REQUIREMENTS APPLICABLE TO EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURAL DISCHARGERS

Unocal belonging to the categories of existing manufacturing, commercial, mining, or silviculture must notify the Department as soon as they know or have reason to believe:

A. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this Order, if that discharge will exceed the highest of the following "notification levels":

1. One hundred micrograms per liter (100 µg/l).
2. Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony.
3. Five (5) times the maximum concentration value reported for that pollutant in the Order application in accordance with 40 CFR 122.21(g)(7).
4. The level established by the Director in accordance with 40 CFR 122.44(f).

B. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in this Order, if that discharge will exceed the highest of the following "notification levels":

1. Five hundred micrograms per liter (500µg/L).

2. One milligram per liter (1 mg/L) for antimony.

3. Ten (10) times the maximum concentration value reported for that pollutant in the Order application in accordance with 40 CFR 122.21(g)(7).

4. The level established by the Director in accordance with 40 CFR 122.44(f).

G22. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order shall be submitted no later than fourteen (14) days following each schedule date.

FACT SHEET
UNOCAL EDMONDS TERMINAL

SUMMARY

This fact sheet is a companion document to Appendix B of this Order. The Department of Ecology is proposing to issue this Order, which allows the discharge of treated stormwater to surface waters subject to certain restrictions.

This fact sheet explains the nature of the proposed discharge, the Department's decision on limiting pollutants in the wastewater, and the regulatory and technical basis for those decisions.

GENERAL INFORMATION	
Applicant:	Unocal Corporation P. O. Box 2004 Edmonds, WA 98020
Facility Name and Address:	Unocal Edmonds Terminal 11720 Unoco Road, Building C Edmonds, WA 98020
Type of Facility:	Bulk Petroleum Terminal (Closed)
Discharge Location:	Willow Creek Tributary to Puget Sound Outfall 001 Outfall 002 Latitude: 47° 48' 26" N 47° 48' 25" Longitude: 122° 23' 24" W 122° 23' 24"
Water Body ID Number:	WA-PS-0040
Prepared by:	Jeanne Tran, P.E. Permit Manager, Industrial Unit

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. The EPA has delegated responsibility to administer the NPDES Order program to the State of Washington on the basis of Chapter 90.48 RCW which defines the Department of Ecology's authority and obligations in administering the wastewater discharge Order program.

The regulations adopted by the State include procedures for issuing Orders (Chapter 173-220 WAC), water quality criteria for surface and groundwaters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit or an Order be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in this Order. (see Appendix I--Public Involvement of the fact sheet for more detail on the public notice procedures). Site maps are enclosed in Appendix II.

The fact sheet and draft Order have been reviewed by Unocal and errors in fact have been corrected. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment.

BACKGROUND INFORMATION

HISTORY

The Unocal Edmonds Bulk Fuel Terminal comprises approximately 44 acres of land on and adjacent to the northern slope of a hillside and lies within approximately 1,000 feet of the Puget Sound Shoreline, see Figure 2.

The Terminal, which ceased operation in 1991, was used for the bulk storage and distribution of petroleum fuels. The 29-acre lower yard consists of office buildings, former truck loading racks, aboveground piping, aboveground storage tanks, underground storage tanks and vaults, detention basins, and an API oil water separator. Previous operations also included an air-blown asphalt plant, an asphalt-packaging warehouse, and a railcar loading/unloading facility. The 15-acre upper yard consists of 24 aboveground fuel storage tanks, above-grade piping, a garage, and warehouse. The tanks and piping located in the upper yard were emptied and steam cleaned to be rendered gasoline free vapor in 1993.

A remedial investigation was performed between October 1994 and August 1996 indicating that soil and groundwater within the Unocal property are contaminated with petroleum products. Unocal has entered an Agreed Order with Ecology's Toxic Cleanup Program (TCP) to conduct a Remedial Investigation/Feasibility Study to recover free product on the groundwater table, and to develop the remedial actions for the dissolved product in groundwater.

GROUNDWATER

The site is underlain by fill, alluvium, and a sequence of glacial and pre-glacial deposits. Groundwater is primarily found in one site-wide aquifer, at depths generally less than 8 feet below ground surface (bgs) in the lower yard, and 20 to 140 feet bgs in the upper yard. Groundwater flow is generally toward the north to Puget Sound.

STORMWATER DISCHARGE

The upper and lower yards at the Terminal are served by a stormdrain system which ultimately conveys stormwater to the site's API oil water separator for treatment. The system includes a series of catch basins connected by underground concrete pipes, a sump with a pump, the two detention basins, and the API oil water separator.

Petroleum-related chemicals were detected in on-site stormwater, primarily from the lower yard. Stormwater collected from the upper yard through individual catch basins connected in series by underground concrete pipes, is manually drained into one of the lower yard sumps. This water combined with the stormwater is collected from the lower yard, and routed to an API oil water separator prior to entering Detention Basin No. 2 (also known as Midlake). Detention Basin No. 2 is lined with plastic material. Its outfall is identified as Outfall 002 which discharges into Willow Creek, see Figure 3. Outfall 002 is manually controlled by a valve which is normally kept closed except during discharge when Detention Basin No. 2 reaches a certain level, or during heavy storm events.

Stormwater from Detention Basin No. 2 can be overflowed through a spillway into Detention Basin No. 1. Upper yard runoff can be routed directly into Detention Basin No.1 during heavy storm events, as necessary. Detention Basin No. 1 is partially paved with off-specification asphalt material. Detention Basin No. 1 has the appearance of a wetland due to vegetation growth within the pond. Due to shallow groundwater at the site, Detention Basin No. 1 also receives contaminated groundwater through cracks at the bottom of the Basin. Observation and measurements made during the RI study indicated that the water levels in the ditch were higher than water levels in Detention Basin No. 1. The highest water level recorded in Detention Basin No. 1 during the RI was about 3 feet below the top to the berm around the basin.

Occasionally, the treated stormwater from the API separator can be discharged directly into Willow Creek through a series of nonoperating hydrocleaner units, a filter unit, and a holding sump to Outfall 001.

PREVIOUS PERMIT

Unocal obtained a general stormwater permit No. SO03-002953 on July 12, 1999, which has an expiration date of November 18, 2000. Due to the fact that the stormwater discharge contains contaminated groundwater, this Order is necessary to address the discharge in replacement of the stormwater general permit. Unocal submitted a permit application for an individual permit on September 2, 1999. The application was accepted by the Department on September 1, 2000.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

A Companion Order No. DE 97WQ-N321 was issued along with the General Stormwater Permit No. S03-002953 on January 9, 1998. Unocal has been in compliance with the requirement as specified in the Order. The facility last received an inspection on August 31, 2000.

WASTEWATER CHARACTERIZATION

The Permittee reported the following concentrations for pollutant parameters on their permit application (Form 2C):

Parameter	Reported Concentration
Suspended Solids	57 mg/L
pH	between 6.6 and 7.39 standard units
Benzene	7.61 µg/L
Ethylbenzene	1.06 µg/L
Toluene	0.98 µg/L
Oil & grease	<5.0 mg/L
Arsenic (total)	<10 µg/L
Cadmium (total)	<10 µg/L
Chromium (total)	<10 µg/L
Copper (total)	<10 µg/L
Lead (total)	<10 µg/L
Zinc (total)	98.5 µg/L
Phenols (total)	22.6 µg/L

DESCRIPTION OF THE RECEIVING WATER

The Terminal is situated within 1,000 feet of Puget Sound. Tides in the Edmonds part of Puget Sound range from approximately -3 to 13 feet relative to mean low low water. The Terminal is bounded on the northwest and northeast by an open and uncontrolled drainage ditch (also known as Willow Creek), see Figure 3. The drainage ditch carries surface water into a tidal basin, where water is then conveyed beneath the Burlington Northern Railroad right-of-way via a 48-inch-diameter culvert and on to Puget Sound.

The drainage ditch and the marsh are directly connected to Puget Sound and are tidally influenced. During periods of high tide, flow reversal occurs in the ditch and the marsh partially fills with water. During periods of low tide, the marsh completely drains. Surface water elevations in the ditch around and downstream of Detention Basin No. 1 were higher than groundwater elevations adjacent to the ditch in these areas.

The Terminal discharges stormwater to the drainage ditch or Willow Creek (a tributary of Puget Sound) which is designated as a Class AA. Water quality for Class AA is considered to support characteristic uses such as water supply, stock watering, fish and shellfish rearing, spawning, and harvesting, fish migration, wildlife habitat, recreation, commerce, and navigation.

PROPOSED ORDER LIMITATIONS

The Clean Water Act 301(b) requires all point sources that discharge to the waters of the U.S. to meet technology-based effluent limitations and state water quality standards for the discharge of pollutants. Federal and State regulations require that effluent limitations set forth in an NPDES Order must be the most stringent of technology- or water quality-based limitations. Technology-based limitations are based upon the treatment methods available to treat specific wastewater. Technology-based limitations are set by regulation (40 CFR, and Chapter 173-220 WAC).

Water quality-based limitations are based upon maintaining the characteristic and beneficial uses of receiving waters (Chapter 173-201A WAC) and assuring that the discharge will comply with the numerical Water Quality Standards. The more stringent of these two limits must be chosen for each of the parameters of concern or an indicator for the parameters of concern.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Federal effluent guidelines have not been promulgated for wastewater discharges resulting from underground storage tank cleanups. Consequently, the technology-based effluent limits of this Order have been developed on a best professional judgment (BPJ) basis in accordance with 40 CFR 125.3. No water quality based-limit is set in this Order because the technology based-limits are more stringent than the water quality standards for Benzene, Ethylbenzene, Toluene, and Xylene (BTEX). The requirement that all wastewater permits issued by the state of Washington impose all known, available and reasonable methods of control and treatment of pollutants (AKART) is satisfied for this Order through the determination of BPJ limits.

The regulation which authorizes discharges to the waters of the state of Washington, Chapter 173-220 WAC, requires that all discharges from point sources apply AKART to reduce the concentrations of pollutants.

EFFLUENT LIMITATIONS

The following technology-based effluent limitations have been proposed for this Order:

Parameter	Maximum Daily Limitation
Benzene	5.0 µg/L
BTEX	100 µg/L
Naphthalenes	160 µg/L
Gasoline Range Organics (GRO), benzene present	800 µg/L
Gasoline Range Organics (GRO), no detectable benzene	1,000 µg/L
Diesel Range Organics (DRO)	500 µg/L
Heavy Oils	500 µg/L
Oily Sheen	No visible sheen

The above effluent limitations are based on the Method A cleanup levels for groundwater under the revised Model Toxics Control Act adopted in February 2001 and on the application of AKART.

No limitation is set for lead and arsenic at this time. Monitoring-only is required. However, if monitoring data indicates concentrations exceeding 15 µg/L and 5 µg/L (total recoverable for lead and arsenic, respectively), the Department will require Unocal to investigate the lead and arsenic background concentrations in the vicinity within a six-month period after becoming aware of such concentrations. If the monitoring data indicates exceedance of the background concentration for lead and arsenic, then the Department will use the available background information to set a lead limit for lead and arsenic for the facility.

The monitoring data for these parameters may be evaluated in order to develop performance-based effluent limits for the next Order.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge Orders shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state.

The Department will use the designated classification criteria or this waterbody in the proposed Order. This Order should not cause a degradation of existing water quality.

WATER QUALITY-BASED EFFLUENT LIMITS FOR NUMERIC CRITERIA

The water quality-based effluent limit set in this Order is as follows:

Outfalls	Parameter	Effluent Limit
001, 002	pH	between 6.5 and 8.5 standard units

The Water Quality criteria for pH in a Class "AA" fresh water environment (Willow Creek) is between 6.5 and 8.5 standard units.

MONITORING AND REPORTING

Effluent monitoring, recording, and reporting are required (WAC 173-220-210) to verify the treatment process is functioning correctly and the effluent limitations are being achieved. The monitoring and testing schedule is detailed in the Order under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

HUMAN HEALTH

The water quality standards now include 91 numeric human health-based criteria. The effluent limits set in this Order for benzene, ethylbenzene, toluene are well below the numeric human health-based criteria.

WHOLE EFFLUENT TESTING

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing.

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

In accordance with WAC 173-205-040, Unocal 's effluent has been determined to have the potential to contain toxic chemicals. The proposed Order contains requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in chapter 173-205 WAC. The proposed Order requires Unocal to conduct toxicity testing for one (1) year in order to characterize the acute toxicity of the effluent.

If acute toxicity is measured during effluent characterization at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity, then the proposed Order will set a limit on the acute toxicity. The proposed Order will then require Unocal to conduct WET testing in order to monitor for compliance with an acute toxicity limit. The proposed Order also specifies the procedures Unocal must use to come back into compliance if the limits are exceeded.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC_{50}, EC_{50}, etc. Ecology recommends that Unocal send a copy of the acute toxicity sections of their Orders to their laboratory of choice.

When the WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water toxicity, Unocal will not be given WET limits and will only be required to retest the effluent prior to the fifth (5^{th}) year of issuance of this Order in order to demonstrate that toxicity has not increased in the effluent.

If Unocal makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by Order modification, or in the Order renewal. Toxicity is assumed to have increased if WET testing conducted for submission with an Order application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard."

Unocal may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Unocal to evaluate the potential for the discharge to cause a violation of application standards (WAC 173-204-400).

The Department has determined that the discharge from this facility is not likely to contain toxic materials in concentrations which may cause violations of the sediment standards. Thus, sediment monitoring is not required in this Order. Should the characteristics of the discharge change such that violations of the sediment quality standards become more likely, sediment monitoring may be required through either a modification of the Order or through an administrative order.

SPILL CONTROL PLAN

Since no chemical products will be stored on-site and no solid waste is expected to be generated from the remediation operation, a spill and solid waste control plan will not be required in this Order.

TREATMENT SYSTEM OPERATING PLAN

The treatment system will be operated according to procedures and criteria described in an approved operating plan. This plan will be submitted to the Department for review. The plan will, at a minimum:

A. Define the baseline operating conditions and describe the operating parameters and procedures to be used under these conditions.

B. Describe the operating parameters and procedures needed to maintain Order compliance during foreseeable unusual operating conditions.

C. Describe any regularly scheduled maintenance or repair activities at the permitted facilities which would affect the volume or character of the wastes discharged; develop a list including quantities and chemical compositions of any maintenance-related substances (such as cleaners, degreasers, solvents, etc.) that will be used.

The plan may also include an evaluation of influent, intermediate, and final effluent testing results of the treatment system. The purpose of the evaluation would be to identify indicator parameters and monitoring points that would provide for effective compliance monitoring with reduced testing frequencies. If included in the plan, this evaluation should also include a proposed schedule for compliance and operations monitoring.

UPDATED STORMWATER BEST MANAGEMENT PRACTICES PLAN

A Stormwater Best Management Practices (BMP) plan update will be required to be submitted to the Department for review. The plan will address the following source control BMPs: containment and storage of contaminated soils during drilling and construction, provisions for roofs over storage and working areas, and provisions for drainage from the groundwater treatment system area.

WELL CONSTRUCTION DETAILS

All new wells must be constructed in accordance with Chapter 173-160 WAC, part 1 and 3. Figure 7 in Chapter 173-160 WAC illustrates the well construction.

STUDY OF BACKGROUND CONCENTRATION FOR LEAD

If the monitoring data indicates concentrations exceeding 5 µg/L (total recoverable), the Department will require Unocal to investigate the vicinity's background concentration for lead in groundwater. This data may be used to set a water quality-based lead limit for the facility.

EFFLUENT MIXING STUDY

The Department has estimated the amount of mixing of the discharge within the authorized mixing zone to determine the potential for violations of the Water Quality Standards for Surface Waters (Chapter 173-201A WAC). Condition S6 of this Order requires Unocal to more accurately determine the mixing characteristics of the discharge. Mixing will be measured or modeled under conditions specified in the Order to assess whether assumptions made about dilution will protect the receiving water quality outside the allotted dilution zone boundary.

OTHER SPECIAL CONDITIONS

The specific requirements listed in Order condition S3. are derived directly from federal regulations in 40 CFR 122.22, 122.41, 122.44, and 122.48.

HUMAN HEALTH

The Department has determined that the applicant's discharge does not contain chemicals of concern based on existing data or knowledge. The discharge will be re-evaluated for impacts to human health at the next Order issuance.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law regulations and have been standardized for all Orders issued by the Department.

ORDER MODIFICATIONS

The Department may modify this Order to impose numerical limitations, if necessary, to meet Water Quality Standards, or Groundwater Standards, based on new information obtained from sources such as inspections, effluent monitoring.

The Department may also modify this Order as a result of new or amended state or federal regulations.

REFERENCES

1. DMRs from LUST permit cleanup site (TPH, lead).

2. Environmental Protection Agency (EPA) 1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

3. EPA 1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Groundwater. EPA/600/6-85/002a.

4. METRO reports of monitoring of wastewater discharges at groundwater remediation sites.

5. Model NPDES Permit for Discharges Resulting From the Cleanup of Gasoline Released From Underground Storage Tanks. EPA Office of Water Enforcement and Permits and Office of Underground Storage Tanks. June 1989.

6. NPDES Permit Application submitted by Unocal on September 2, 1999.

APPENDIX I--PUBLIC INVOLVEMENT

The Department has tentatively determined to issue this Order to the applicant listed above. The Order contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public Notice of Application was published on September 4 and 11, 2000, in the *Everett Herald* to inform the public that an application had been submitted and to invite comment on the reissuance of this Order.

The Department will publish a Public Notice of Draft (PNOD) in the *Everett Herald* to inform the public that a draft Order and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft Order. The draft Order, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 4:30 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

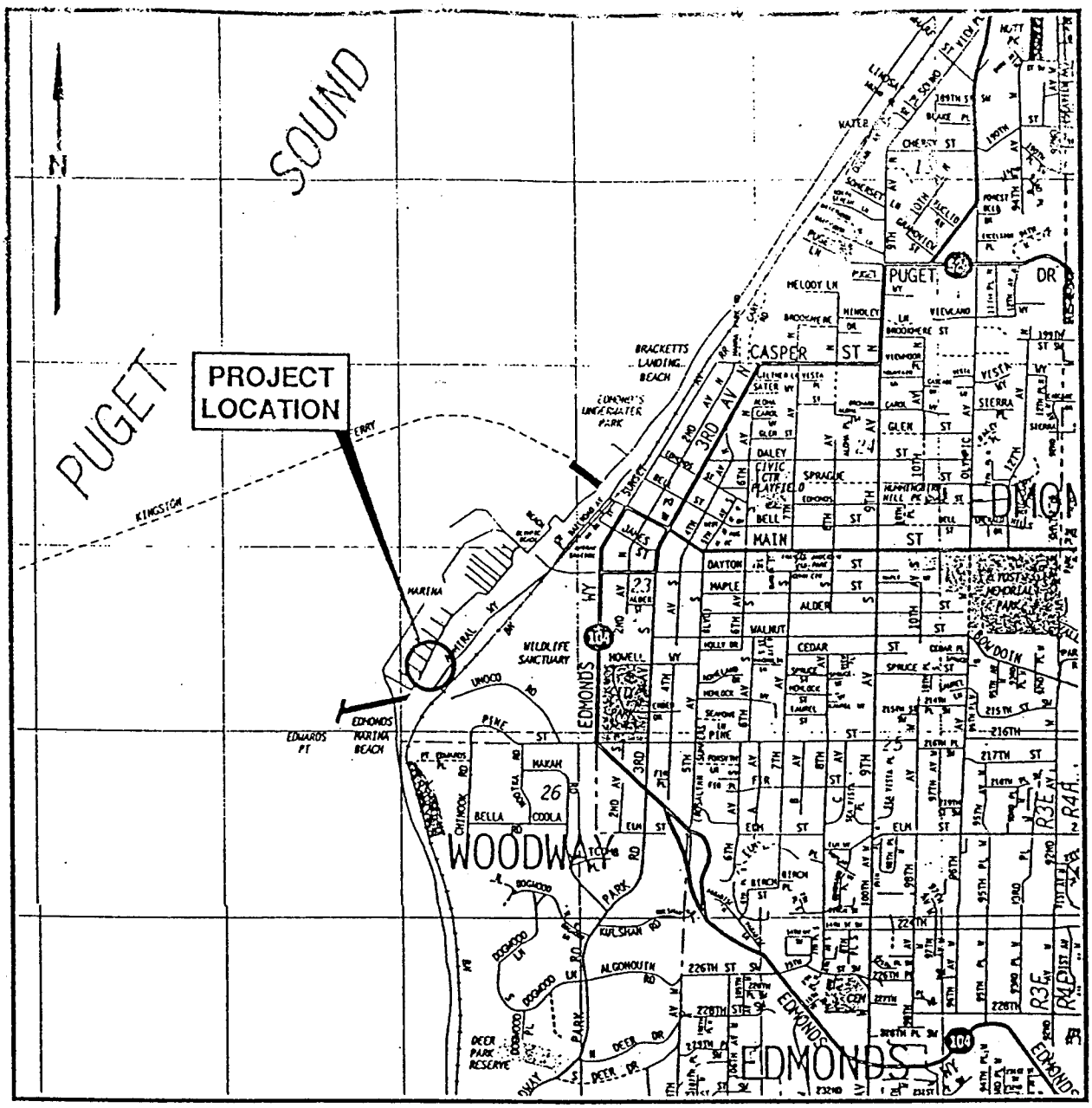
Water Quality Order Coordinator
Department of Ecology
Northwest Regional Office
3190 – 160th Avenue SE
Bellevue, WA 98008

Any interested party may comment on the draft Order or request a public hearing on this draft Order within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft Order (WAC 173-220-090). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this Order will be mailed an individual notice of hearing (WAC 173-220-100).

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the Order. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this Order.

Further information may be obtained from the Department by telephone, (425) 649-7201, or by writing to the address listed above.

APPENDIX II–SITE MAPS

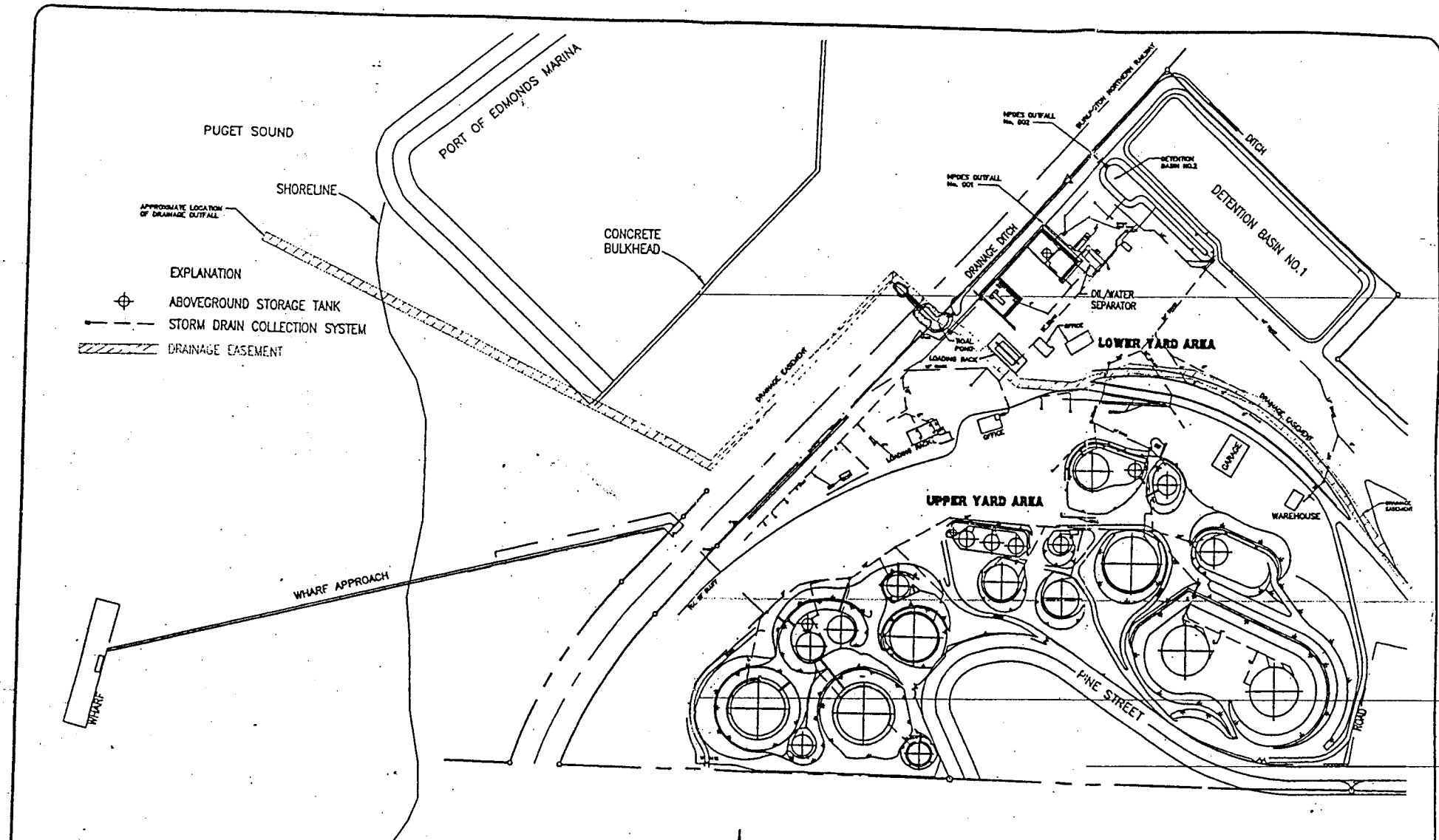


0 1/2 1

Scale in Miles

349001.10 P:\A\D\Port of Edmonds Dry Boat Storage\Geotech. Report (M) 3/96

	Vicinity Map	Figure 1



EMCON Northwest, Inc.

Source: Union Oil Company of California Los Angeles, California
Site Area Study General Arrangement Edmonds Terminal
Edmonds, Washington. 10/12/92

N

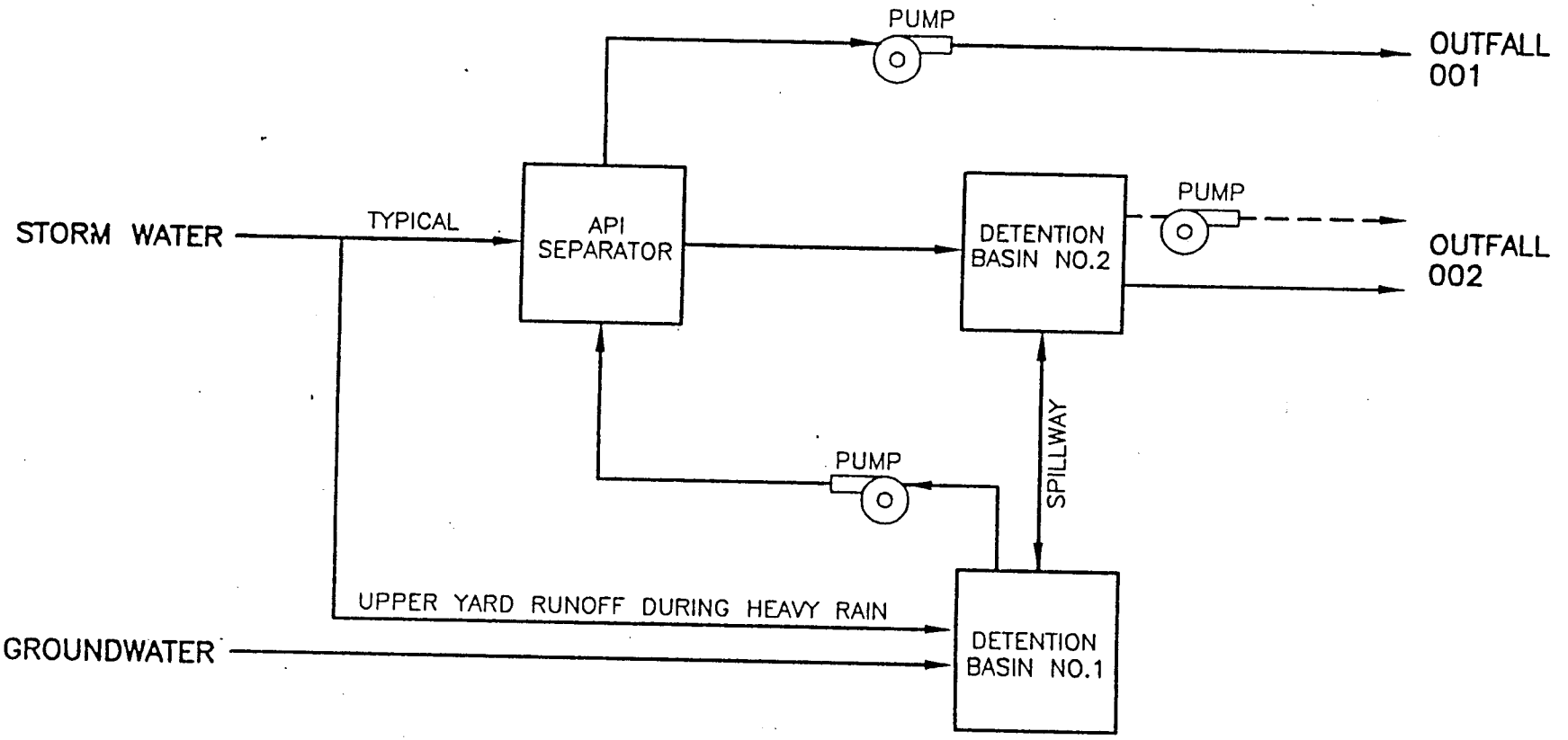
0 200 400

SCALE (ft)

DATE	11/92
DWN.	KLM
REV.	
APPR.	
PROJECT NO.	0324-035.01

Figure 2
UNOCAL CORPORATION
EDMONDS, WASHINGTON
BULK FUEL TERMINAL
STORM DRAIN COLLECTION SYSTEM

1= 200 11-22-93 0324\035\01C31



EXPLANATION

- - - - FLEXIBLE HOSE

NOTE: SCHEMATIC ONLY, NOT TO SCALE.

Maul Foster & Alongi, Inc.

DATE 8/99
DWN. JLN
APPR. ____
REVIS. ____
PROJECT NO.
9077-001.001

Form 2C, Item II
UNOCAL EDMONDS TERMINAL
EDMONDS, WASHINGTON

Figure 3

WATER FLOW

JLN\MFA\9077\001\001-FLO

PLOT AT 1 = 1P